

Abstract

The present invention relates to an electrochemical device. The device features an anode constructed of materials such that the device can be chemically recharged. In addition, the device is capable of switching between operating as a fuel cell or as a battery. The switch 5 can occur without cessation of electrical output. In certain aspects of the invention, the device is capable of operating at a temperature of less than 1000 °C. Other aspects feature a liquid anode which allows higher output, dispersion of fuel and minimal stresses in an interface comprising the anode. Preferably the anode is a liquid at a temperature of less than 1000 °C. The invention also relates to methods for energy conversion in which a continual 10 electrical output can be produced in both the presence of fuel without anode consumption or the absence of fuel.